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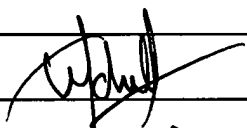
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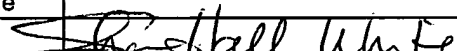
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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Applicant Number	09/888,309	
	Filing Date	June 21, 2001	
	First Named Inventor	Melissa K. Carpenter, et al.	
	Group Art Unit	1632	
	Examiner Name	Thaian N. Ton	
Total Number of Pages in This Submission	9	Attorney Docket Number	090/002

ENCLOSURES (check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address (1 page) <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Preliminary Amendment (6 pages), Version with Markings to Show Changes Made (2 pages)
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	J. Michael Schiff, Registration No. 40,253
Signature	
Date	February 15, 2002

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of: M. Carpenter et al.

Serial No.: 09/888,309

Filing Date: June 21, 2001

For: DOPAMINERGIC NEURONS OBTAINED
FROM HUMAN EMBRYONIC STEM CELLS

Art Unit: 1632

Examiner: Thaian N. Ton, Ph.D.

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PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Applicants understand that this application has not yet been examined on the merits. Accordingly, please enter the enclosed amendments and remarks into the application, pursuant to 37 CFR § 1.115(b)(1).

AMENDMENTS

Please delete the current TITLE of the application and replace it with the following:

**DOPAMINERGIC NEURONS OBTAINED FROM
HUMAN EMBRYONIC STEM CELLS**

Please cancel claims 1-20 without prejudice, and replace them with the following new claims:

23. A method for producing a neural cell population from human embryonic stem (hES) cells, comprising culturing progeny of the hES cells in a medium containing one or more added TGF- β Superfamily Antagonists so as to produce a population in which at least 50% of the cells express either polysialylated NCAM or β -tubulin III.
24. The method of claim 23, wherein the progeny are cultured in a medium containing noggin.
25. The method of claim 23, wherein the progeny are cultured in a medium containing follistatin.
26. The method of claim 23, wherein the medium further contains a neurotrophin.
27. The method of claim 26, wherein the neurotrophin is NT-3 or BDNF.
28. The method of claim 23, wherein the medium further contains a combination of factors selected from differentiation factors, neurotrophic factors, and survival factors.
29. The method of claim 23, comprising differentiating the hES cells by plating them onto a solid surface without forming embryoid bodies or cell aggregates.
30. The method of claim 29, wherein the solid surface comprises fibronectin or a polycation.
31. The method of claim 23, wherein at least 10% of the MAP-2 positive cells in the produced

population express tyrosine hydroxylase.

32. The method of claim 23, further comprising combining the cell population with a compound, determining any phenotypic or metabolic changes in the cell that result from contact with the compound, and correlating the change with cellular toxicity or modulation caused by the compound.
33. The method of claim 23, further comprising identifying an mRNA expressed at a different level in the neural cell population, relative to the level in undifferentiated hES cells; and preparing a polynucleotide comprising a nucleotide sequence of at least 30 consecutive nucleotides contained in the identified mRNA.
34. A set of two cultured cell populations, consisting of:
a first cell population comprising undifferentiated cells from a line of human embryonic stem (hES) cells; and
a second cell population, comprising progeny of the hES cells in a medium containing one or more added TGF- β Superfamily Antagonists.
35. A set of two isolated cell populations, consisting of:
a first cell population comprising undifferentiated cells from a line of human embryonic stem (hES) cells; and
a second cell population, comprising at least ~10% hES derived neural cells, identifiable by the criteria that they are progeny of said hES cell line and express both MAP-2 and tyrosine hydroxylase.
36. The set of cell populations of claim 35, wherein the second population has been produced from cells of the first population (or their progeny) by the method of claim 23.